

## CLAIMS

We claim:

1. A peptide comprising a sequence of at least about 8 amino acids, wherein said peptide binds to a fluorophore dye.
- 5 2. The peptide according to claim 1, wherein said amino acids are naturally-occurring amino acids.
3. The peptide according to claim 1, wherein said fluorophore dye is selected from the group consisting of Texas Red, Rhodamine Red, Oregon Green 514, and Fluorescein.
4. The peptide according to claim 1, wherein said peptide is fused to a presentation structure.
- 10 5. The peptide according to claim 4, wherein said presentation structure comprises the sequence shown in SEQ ID NO:112.
6. A complex comprising a fluorophore dye and a peptide comprising a sequence of at least about 8 amino acids, wherein said dye is bound by said peptide.
7. The complex according to claim 6, wherein said composition has a dissociation constant less  
15 than or equal to about 0.5 micromolar.
8. The complex according to claim 6, wherein said dye is Texas Red and said peptide has an amino acid sequence selected from the group consisting of SEQ ID NO:1, SEQ ID NO:2, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:97, SEQ ID NO:98, SEQ ID NO:99, SEQ ID NO:100, SEQ ID NO:101, SEQ ID  
20 NO:102, SEQ ID NO:103, SEQ ID NO:105, SEQ ID NO:106, SEQ ID NO:107, SEQ ID NO:108, SEQ ID NO:109, SEQ ID NO:110, SEQ ID NO:111.
9. The complex according to claim 6, wherein said dye is Rhodamine Red and said peptide has an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:22, and SEQ ID NO:23.
- 25 10. The complex according to claim 6, wherein said dye is Oregon Green 514 and said peptide

has an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, and SEQ ID NO:30.

11. The complex according to claim 6, wherein said dye is Fluorescein and said peptide has an amino acid sequence selected from the group consisting of SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:38, SEQ ID NO:39, and SEQ ID NO:40.

12. The complex according to claim 6, wherein said composition has an excitation spectrum that differs from the excitation spectrum of said fluorophore dye in the absence of said peptide.

13. The complex according to claim 6 or 8, wherein said composition has an emission spectrum that differs from the emission spectrum of said fluorophore dye in the absence of said peptide.

14. A method of binding a peptide to a fluorophore dye, comprising;  
contacting said fluorophore dye with said peptide, wherein said peptide comprises a sequence of at least about 8 amino acids that binds said fluorophore dye.

15. The method according to claim 13, wherein said binding alters the emission spectrum of said fluorophore dye.

16. The method according to claim 14 or 15, wherein said binding alters the excitation spectrum of said fluorophore dye.

17. The method according to claim 14, wherein said peptide is fused to a protein.

18. A method of detecting a fluorette comprising  
a) contacting a fluorophore dye and fluorette comprising at least 8 amino acids under conditions wherein said dye and said fluorette bind to form a dye complex; and  
b) detecting the presence of said dye complex.

19. The method according to claim 18, wherein said fluorette is fused to a target analyte.

20. The method according to claim 18, wherein said fluorette is fused to a presentation structure.
21. The method according to claim 20, wherein said presentation structure comprising the sequence shown in SEQ ID NO:112.
22. A method according to claim 18 wherein said detecting comprises:
- 5           a) irradiating said dye bound to said peptide
- b) detecting an emission of said fluorophore dye bound to said peptide, whereby said peptide is detected.
23. A method according to claim 18 wherein said peptide is fused to an exogenous protein to form a fusion protein.
- 10 24. A peptide comprising an amino acid sequence,  $X_1-X_2-X_3-X_4-Y-W-T-X_5-M-F-Y-X_6$ , wherein,
- $X_1$  is selected from the group consisting of K, N and T;
- $X_2$  is selected from the group consisting of H, P, and N;
- $X_3$  is selected from the group consisting of A and V;
- $X_4$  is selected from the group consisting of H and Q;
- 15            $X_5$  is selected from the group consisting of H and Q;
- $X_6$  is selected from the group consisting of S and T.
25. A peptide comprising an amino acid sequence,  $X_1-P-H-X_2-P-M-Y-W-T-X_3-V-F$ , wherein,
- $X_1$  is selected from the group consisting of I and L;
- $X_2$  is selected from the group consisting of P and R;
- 20            $X_3$  is selected from the group consisting of P and R.
26. A peptide comprising an amino acid sequence,  $X_1-X_2-W-X_3-Y-X_4-W-D-W-T-X_5-F-W$ ,
- $X_1$  is selected from the group consisting of H and Q;
- $X_2$  is selected from the group consisting of E and G;
- $X_3$  is selected from the group consisting of D and E;
- 25            $X_4$  is selected from the group consisting of Y and N;
- $X_5$  is selected from the group consisting of A, D, P, and T;
27. A peptide comprising an amino acid sequence,  $Y-X_1-X_2-X_3-X_4-X_5-W-W-X_6-Y-Y-X_7$ , wherein,

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- X<sub>1</sub> is selected from the group consisting of H, P, and T, or is optionally omitted;
  - X<sub>2</sub> is selected from the group consisting of H, N, S, and Y;
  - X<sub>3</sub> is selected from the group consisting of D and E;
  - X<sub>4</sub> is selected from the group consisting of F and Y;
  - X<sub>5</sub> is selected from the group consisting of D and E;
  - X<sub>6</sub> is selected from the group consisting of D and E;
  - X<sub>7</sub> is selected from the group consisting of F, L, M, and Y.

28. A peptide comprising an amino acid sequence that is 90% identical to the amino acid sequence of claims 19, 20, 21, or 22.